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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,555	03/04/2002	Kanwal K. Raina	M4065.0206/P206A	7943
24998	7590	06/16/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			GUHARAY, KARABI	
2101 L Street, NW			ART UNIT	PAPER NUMBER
Washington, DC 20037			2879	
DATE MAILED: 06/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

EK

<b>Office Action Summary</b>	<b>Application No.</b> 10/086,555	<b>Applicant(s)</b> RAINA, KANWAL K.	
	<b>Examiner</b> Karabi Guharay	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-17, 19-29 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-17 is/are allowed.
- 6) ☒ Claim(s) 19-29 & 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

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Amendment, filed on 4/11/2005 has been considered and entered.

Cancellation of claims 18 & 30 has been acknowledged.

New claim 31 is added.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19-20 are rejected since claims are dependent on claim 18, which has been cancelled. Thus scope of the claims 19-23 cannot be ascertained. Appropriate corrections are required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24-29, & 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Sandhu et al. (US 6086442).

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 24, 27, 28 & 31, Sandhu et al. disclose a field emission display device (Fig 3) comprising at least one current emitter (48) (lines 20-22 of column 2), and having a top (tip of the emitter 48) and bottom (base of the emitter 48), bottom or base of the emitter is formed of a doped silicon, a substrate (60) having a phosphor coating (62) in at least one region positioned to receive electrons from the current emitter (lines 46-57 of column 4), the current emitter comprising a surface treated focal point (the tip of the emitter) wherein the focal point (tip of the current emitter) emits current wherein the tip of the emitter or the focal point comprises nitrogen (focal point or tip of the emitter contain metal layer 56, which is treated with nitrogen plasma, thus nitrogen infused on the surface, lines 11-25 of column 3).

Regarding claim 25, though Sandhu et al. do not explicitly disclose that the current emission surface has atomic concentration of oxygen and silicon reduced to values smaller than the atomic concentration of oxygen and silicon of the current surface subjected to atmospheric conditions, Sandhu discloses plasma enhanced chemical vapor deposition process followed by nitrogen infusion process so that metal nitride is formed on the surface thus inherently has atomic concentration of oxygen and

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silicon reduced to values smaller than the atomic concentration of oxygen and silicon of the current surface subjected to atmospheric conditions, silicon layer when exposed to atmospheric conditions forms oxides (silicon dioxide) while in Sandhu's device for the presence of metal nitride layer oxidation cannot occur in Sandhu's emitter surface.

Regarding claims 26 & 29, Sandhu et al. disclose a field emission display device (Fig 3) comprising an array of current emitter (48), a substrate (60) having a phosphor coating (62) in at least one region positioned to receive electrons from the current emitter (lines 46-57 of column 4), the current emitter comprising an emission focal point (tip of the emitter) comprising doped silicon infused with nitrogen (treated with nitrogen plasma, thus nitrogen infused or deposited on the surface, lines 11-25 of column 3).

#### ***Allowable Subject Matter***

Claims 12-17 are allowed over the prior art of record.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither shows nor suggests a field emission display comprising all the limitations of claim 12, particularly comprising a doped silicon emitter having a tip comprising nitrogen and comprising sides below the tips wherein at least a portion of the sides are surrounded by an insulating layer.

Claims 13-17 are allowed being dependent on allowed base claim 12.

#### ***Response to Arguments***

Applicant's arguments filed 4/11/2005 have been fully considered but they are not persuasive.

Applicant (in Remark, page 8) contends that Sandhu's Col. 3, lines 11-25 do not relate to emitters, and further states that metal layer 56 is formed on the top surface of conductive extraction grid (col.2, lines 30-33).

However, examiner respectfully disagrees. Sandhu in Col.2 lines 30-33, clearly stated that metal layer 56 is formed over conductive grid 52 and over the emitters 48. Further, Fig 2 and Fig 3 clearly show metal layer 56 in on the conductive grid 52 as well as on the emitter cone 48.

Then Applicant admits that the top surface of the extraction grid 52 comprises nitrogen, since metal layer 56 is on the top of the extraction grid 52. Therefore since metal layer 56 is also on the top of the emitter 48, Sandhu's tip or focal point of the emitter also comprises nitrogen.

Thus, Sandhu's emitter cone has a focal point, which is the tip of the emitter comprising nitrogen.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Karabi Guharay*  
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Art Unit 2879